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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/724,737

12/02/2003

Tadahiro Asaishi

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07/13/2004

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EXAMINER

NGUYEN, HUNG

ART UNIT

PAPER NUMBER

2851

DATE MAILED: 07/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/724,737

Applicant(s)

ASAISHI, TADAHIRO

Examiner

Hung Henry V Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 02 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 December 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 12/03.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Drawings*

1. Figure 9 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawing sheets are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### *Claim Rejections - 35 USC § 102*

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-3, 5-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Nishi et al (U.S.Pat. 5,894,341).

With respect to claims 1 and 9-10, Nishi (figure 1) discloses an exposure apparatus and corresponding method for transferring a predetermined pattern formed on a mask onto a substrate and comprising all basic features of the instant claims such as: a photoelectric sensor (33, 49, 53, 55) placed at a predetermined position for controlling exposure of the substrate; a

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memory (21) that stores an output variation characteristic of the photoelectric sensor with respect to a quantity of light with which the photoelectric sensor is illuminated; a calculator (19, 20) for calculating an output variation amount of the photoelectric sensor on the basis of the quantity of the light with which the photoelectric sensor is irradiated, energy per unit time of the light and the output variation characteristic stored in the memory (see col.19, lines 2-60) and a compensator (21-22) that corrects an output from the photoelectric sensor on the basis of the output variation amount calculated by the calculator.

As to claim 2, Nishi discloses the calculator is arranged to obtain information that indicate the quantity of light with which the photoelectric sensor is irradiated and the energy per unit time of the light on the basis of information for controlling the light source (see col.19, lines 35-50).

As to claim 5, Nishi discloses the photoelectric sensor including an integrated exposure amount sensor for monitoring an integrated exposure amount of the substrate during exposure of the substrate (see col.22, lines 22-29).

As to claim 6, Nishi teaches the photoelectric sensor including a sensor (49,55) arranged on the substrate stage (48).

As to claim 7, Nishi teaches the photoelectric sensor including an illuminance uniformity sensor (49) that measures an illuminance uniformity in an exposure area.

*Claim Rejections - 35 USC § 103*

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nishi et al (U.S.Pat. 5,894,341) in view of Takahashi et al (U.S.Pat. 6,744,492).

With respect to claim 4, Nishi et al discloses an exposure apparatus and corresponding method for transferring a desired pattern formed on a mask onto a substrate and comprising substantially all of the limitations of the instant claim as discussed. Nishi further discloses the light source being a pulse light source and the exposure control system (20) is connected with a memory (21) which stores information such as scale factors used to determine the quantity of light (exposure per unit time) irradiated on the wafer W based on the output signals of the integrator sensor (33)...and the memory (21) further stores correction factors used to correct the output signal of the integrator sensor 33 based on the calibration results. (see col.19, lines 3-12). Nishi et al does not expressly disclose that “the information includes information that indicates an oscillation frequency, oscillation duty, and energy per pulse of light source and the calculator is arranged to calculate the energy per unit time on the basis of the oscillation frequency, oscillation duty, and energy per pulse”. Takahashi teaches an exposure apparatus where a main control (104) is provided to calculate the energy per unit time on the basis of the oscillation frequency, oscillation duty, and energy per pulse (see col.5, lines 25-50). In view of such

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teachings, it would have been obvious to one having ordinary skill in the art at the time the invention was made to combine the teachings of Nishi and Takahashi to obtain the invention as specified in claim 4. It would have been obvious to a skilled artisan to calculate the energy per unit time of the light in the exposure apparatus of Nishi on the basis of oscillation frequency, oscillation duty and energy per pulse as suggested by Takahashi in order to accurately adjust the output variation of the photoelectric sensor, thereby the optimum exposure quantity can be obtained.

***Prior Art Made of Record***

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

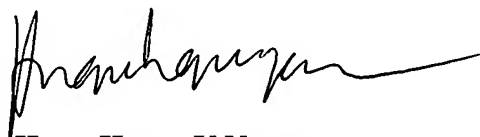
Miyai et al (U.S.Pat. 5,581,324) ; and Suzuki (U.S.Pat. 6,259,510) discloses exposure apparatus and method, each of which comprises substantially all elements as recited in the instant claims.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hung Henry V Nguyen whose telephone number is 571-272-2124. The examiner can normally be reached on Monday-Friday (First Friday off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Russ Adams can be reached on 571-272-2112. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



**Hung Henry V Nguyen**  
**Primary Examiner**  
**Art Unit 2851**

hvn  
7/8/04